



1. A thermal adhesion granulation process for preparing direct tableting formulations or aids, comprising the step of subjecting all or part of a mixture comprising:

A) from about 5 to about 99% by weight of one or more diluent excipients and/or from 0 to about 99% by weight of a pharmaceutically-active ingredient;

B) from about 1 to about 95% by weight of a binder excipient; and

optionally with,

C) from 0 to about 10% by weight of a disintegrant excipient;

to heating at a temperature range of from about ^{room temp} 30 to about 130°C under the condition of from about 0.1 to about 20% initial moisture content and/or from about 0.1 to about 20% initial content of a pharmaceutically-acceptable organic solvent in a closed system under mixing by tumble rotation until the formation of granules.

20 + 20 = 40

2. A process as defined in claim 1, wherein the temperature range is from about 40 to about 110°C.

3. A process as defined in claim 1, wherein the temperature range is from about 60 to about 105°C.

4. A process as defined in claim 1, wherein the initial moisture content is from about 2 to about 15%.

5. A process as defined in claim 1, wherein the initial moisture content is from about 4 to about 10%.

- 1 6. A process as defined in claim 1, wherein the initial organic solvent content is from about
2 0.1 to about 10%.
- 1 7. A process as defined in claim 1, where the initial organic solvent content is from about
2 0.5 to about 5%.
- 1 8. A process as defined in claim 1, wherein the diluent excipient is powdered cellulose,
2 microcrystalline cellulose, lactose, starch, or dibasic calcium phosphate.
- 1 9. A process as defined in claim 1, wherein the pharmaceutically-active ingredient is
2 acetaminophen or ascorbic acid.
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- 1 10. A process as defined in claim 1, wherein the binder excipient is soluble polyvinyl
2 pyrrolidone or hydroxypropylcellulose.
- 1 11. A process as defined in claim 1, wherein the disintegrant excipient is crospovidone,
2 sodium starch glycolate, reticulated carboxymethylcellulose, or low-substituted
3 hydroxypropylcellulose.
- 1 12. A process as defined in claim 1, wherein the diluent excipient is microcrystalline
2 cellulose.
- 1 13. A process as defined in claim 12, wherein the microcrystalline cellulose is of a type in
2 which about 90% of the particles are in the range from about 1 μm to about 125 μm , and
3 the average particle size is from about 10 μm to about 70 μm .
- 1 14. A process as defined in claim 1, wherein the binder excipient is soluble polyvinyl
2 pyrrolidone.

1 15. A process as defined in claim 14, wherein the soluble polyvinyl pyrrolidone has a K
2 value of from about 12 to about 120.

1 16. A process as defined in claim 14, wherein the soluble polyvinyl pyrrolidone has a K
2 value of from about 20 to about 95.

1 17. A process as defined in claim 14, wherein the soluble polyvinyl pyrrolidone has a K
2 value of from about 25 to about 35.

1 18. A process as defined in claim 1, wherein the binder excipient further contains from 0 to
2 about 10% (by weight with respect to the binder) of an anticaking agent.

1 19. A process as defined in claim 18, wherein the binder excipient contains from about 0.01
2 to about 10% (by weight with respect to the binder) of an anticaking agent.

1 20. A process as defined in claim 18, wherein the binder excipient contains from about 2 to
2 about 4% (by weight with respect to the binder) of an anticaking agent.

1 21. A process as defined in claim 18, wherein the anticaking agent is dibasic calcium
2 phosphate anhydrous.

1 22. A product of thermal adhesion granulation process for preparing direct tableting
2 formulations or aids as defined in claim 1.

1 23. A powder mixture of soluble polyvinyl pyrrolidone containing from about 0.01 to about
2 10% (by weight with respect to the polyvinyl pyrrolidone) of dibasic calcium phosphate
3 anhydrous.

1 24. A direct tableting formulation or aid comprising:

- 2 i) from about 5 to about 99% by weight of powder cellulose, microcrystalline cellulose,
3 lactose, starch, or dibasic calcium phosphate;
- 4 ii) from 0 to about 99% by weight of acetaminophen or ascorbic acid;
- 5 iii) from about 1 to about 95% by weight of a soluble polyvinyl pyrrolidone which
6 contains from about 0.01 to about 10% (by weight with respect to the polyvinyl
7 pyrrolidone) of dibasic calcium phosphate anhydrous; and
- 8 iv) from 0 to about 10% by weight of crospovidone, sodium starch glycolate, reticulated
9 carboxymethylcellulose, or low-substituted hydroxypropylcellulose.

1 25. A tablet which comprises a product as defined in claim 22.

1 26. A tablet which comprises the powder mixture as defined in claim 23.

1 27. A tablet which comprises a tableting formulation or aid as defined in claim 24.

1 28. A capsule which comprises a product as defined in claim 22.

1 29. A capsule which comprises a powder mixture as defined in claim 23.

1 30. A capsule which comprises a tableting formulation or aid as defined in claim 24.

1 31. A pellet which comprises a product as defined in claim 22.

1 32. A pellet which comprises a powder mixture as defined in claim 23.

1 33. A pellet which comprises a tableting formulation or aid as defined in claim 24.